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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/840,146 | 05/06/2004 | Helmut Horst Tews | 2004 P 51343 US | 7404 |

25962 7590 09/27/2005

SLATER & MATSIL, L.L.P.
17950 PRESTON RD, SUITE 1000
DALLAS, TX 75252-5793

| EXAMINER | |
|---|---|
| RAO, SHRINIVAS H | |
| **ART UNIT** | **PAPER NUMBER** |
| 2814 | |

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/840,146 | TEWS ET AL. | |
| | Examiner | Art Unit | |
| | Steven H. Rao | 2814 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1 and 5-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1 and 5-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 05/06/2004
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Priority*

The instant Application is a divisional application of U.S. serial No. 09/408,248 ( now U.S. Patent No. 6,740, 555) filed on September 29, 1999. A divisional application has been established with an earliest filling date of September 29, 1999.

### *Information Disclosure Statement*

The IDS filed on May 06, 2004 has been considered . All references listed therein have been considered . An initialed copy of the PTO-1449 has enclosed with instructions to the

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-7 and 9-11 are rejected under 35 U.S.C. 102 (b) as being anticipated by Allison ( U.S. Patent .No. 4,047,195 herein after Allison).

With respect to claim 1 Allison describes a single crystal semiconductor body having a trench with sidewall portions disposed in different crystallographic planes of the body, ( Allison figure 7) such sidewall portions having thereon

substantially uniformly thick, thermally grown, silicon dioxide material. ( Allison col.4 lines 8 to 20).

With respect to claim 5 Allison describes a single crystal semiconductor body comprising : a trench formed in a surface of said single crystal semiconductor body, ( Allsion figure 5 , col. 3 lines 35-37) having sidewall portions being disposed in different crystallographic planes of the body; first sidewall portions disposed in a first one of the different crystallographic planes; ( Allison figure 5 # 32, 33 ( 111) and 35 ( 110) a first layer of silicon dioxide material grown on said first sidewall portions at a first rate and to a first thickness when subjected to a thermal oxidation process; ( Allison col.4 lines 5-10) second sidewall portions disposed in a second one of the different crystallographic planes, ( Allison col.4 lines 5-10) and a second layer of silicon dioxide grown on said second sidewall portion at a second rate ( Allison col. 4 lines 10-20) and on said first layer of said silicon dioxide material at a rate slower than said second rate wherein said first and second sidewall portions of the trench are subjected to a thermal oxidation process such that the thickness of said second layer of silicon dioxide on said second sidewall portions is substantially equal to the thickness of both said first and second layers of silicon dioxide on said first sidewall portions. ( Allison col. 4 lines 30-35 , figures 5,8 -equal thickness on side walls)

With respect to claim 6 Allison describes a single crystal semiconductor body comprising: a surface having portions thereof disposed in a different

crystallographic planes a relatively thin material on selected ones of the surface portions, ( Allison figure 5 # 16 , col. 2 lines 65-68) said selected ones of the surface portions residing in a first crystallographic plane; a layer of silicon dioxide grown over said relatively thin material at a first rate by a thermal oxidation process to a selected thickness; and said silicon dioxide grown at a second rate during said thermal oxidation process on unselected surface portions in a different crystalographic plane, ( see rejection of claims 1 and 5 above) said second rate different than said first rate such that the thickness of said silicon dioxide grown over both the selected surface portions and the unselected surface portions are substantially uniform. ( Allison col. 4 lines 30-35 , figures 5,8 -equal thickness on side walls)

With respect to claim 7 Allison describes the semiconductor body of claim 5 wherein said first sidewall portions are disposed in the <100> crystallographic plane ( Allison figure 5 col.4 line 15) and said second sidewall portions are disposed in the <1 10> crystallographic plane. ( Allison figure 5 # 35 ( 110))

With respect to claim 9 Allison describes the semiconductor body of claim 6 further comprising another layer of silicon said layer of silicon dioxide grown over said relatively thin material have a combined thickness substantially the same as the thickness of said layer of silicon dioxide grown on said unselected surface portions of said semiconductor body. ( Allison col. 4 lines 30-35 , figures 5,8 -equal thickness on side walls)

With respect to claim 10 Allison describes the semiconductor body of claim 6 wherein the relatively thin material is less than approximately 20 Angstroms. ( Allison col.4 lines 30-43).

With respect to claim 11 Allison describes the semiconductor body of claim 6 wherein the relatively thin material forms a layer which is thinner than the corresponding oxide layer grown on the selected and unselected surface portions. ( Allison col. 4 lines 30-35 , figures 5,8 -equal thickness on side walls).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allison ( U.S. Patent .No. 4,047,195 herein after Allison).

With respect to claim 8 Allison describes the semiconductor body of claim 6 wherein the relatively thin material is silicon nitride ( well known in the art to use insulation of silicon nitride or oxide , dioxide e.g. Huang reference cited by Applicants in their IDS ).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is ( 571)272-1718. The examiner can normally be reached on 8.00 to 5.00.

The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300 ( from July 15, 2005).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Steven Rao
Patent Examiner
Sept 21 2005

LONG PHAM
PRIMARY EXAMINER